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SUSTAINABLE PRACTICES AND ETHNOBOTANICAL CONSERVATION OF PLANT RESOURCES OF TRIBAL PEOPLE OF SOUTH KAMRUP DISTRICT, ASSAM

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ABSTRACT:

Sustainable utilization of natural resources is an essence of all traditional societies in different parts of the world. Resources are extracted in a meaningful approach so that it is not exhausted. Indigenous people have acquired a sound knowledge system of activities of plants and animals (phenology) and have successfully employed these traits to harvest resources. Field study design included Rapid Ethnobotanical Appraisal method, village walks and walk along forest, transect with key informants, group discussion with women and interview of traditional healers. These phonological traits are also used by them to time their activities pertaining to agricultural operations. Long-term ethnobotanical engagements with cultural societies expose researchers with an array of opportunities about people-plant interactions in day-to-day life pertaining to (in addition to other activities) diversity of plant resources (crops, etc) utilized and their conservation.

Keywords: Plant resources, conservation,utilisation.

Introduction: Agriculture is the main occupation of the people residing in reserve forest areas of South Kamrup District of Assam (Rabha, Garo, Boro and Tea-Tribes). The practice however, is subsistence in nature as the production is mainly for consumption and only surplus products are traded for cash benefits or bartered. Agricultural land is scarce so farmers make optimum use of land available to them. Indigenous people have acquired a sound knowledge system of activities of plants and animals (phenology) and have successfully employed these traits to harvest resources. Any conservation initiative must be holistic that respect local culture and practice.The natural resources are mindfully utilized by traditional societies in different part of the world. It is almost like a trade mark quality of these societies.The Kamrup district is home to many tribes/communities/groups of diverse racial affinities. Major groups areRabha, Garo, Boro Tea-Tribesand many non-tribal groups. This high ethnic and cultural diversity provide suitable platform or a natural laboratory for ethnobotanical research.Field study design included Rapid Ethnobotanical Appraisal method,

village walks and walk along forest, transect with key informants, group discussion with women and interview of traditional healers. These phonological traits are also used by them to time their activities pertaining to agricultural operations. Long-term ethnobotanical engagements with cultural societies expose researchers with an array of opportunities about people-plant interactions in day-to-day life pertaining to (in addition to other activities) diversity of plant resources (crops, etc) utilized and their conservation.

Expected outcome

This ethnobotanical research will help to document plant resources available and pattern of use by indigenous people of Kamrup district. It can help to evaluate status of phytoresources and threat factors and propose a case for their conservation. This study will highlight intricacies of plant-people interactions and their cultural fabrics. Ethnobotanical operations have prospective resources that can be developed for commercial exploitation which can contribute to local development. Folk crop varieties has been focus of plant breeders as local varieties are source of novel genes for viable traits and ethnobotanical study help to identify these promising local varieties. Such initiative also helps to document and evaluate local production systems and their role in conservation of plant germplasms.

Material and Methods

Earlier studies were based on qualitative methods that resulted in listing of plants used by indigenous people. The various methods adopted in this research is briefly described below-The research included the investigator, key informants and sometimes other members. During plant collections larger group including other informants was formed to collect plant specimens from different habitats.

PROFORMA FOR ETHNOBOTANICAL DATA COLLECTION

PART I. General information

Serial number: Date
Botanical name: Local name:
Details of locality:
Informant/Interpreter:
Name: Age& Sex: Profession:

PART II. Geographical information

Geographical coordinates: Altitude:

Topography: Soil: Vegetation:

Part III. Social information

Name of the tribe: Language: Religion:

Healthcare:

PART IV: Botanical information

Habit: Habitat:

Parts used & mode of use:

Processing (if any):

Wild/Cultivated: Preservation/Storage:

Conservation/Cultivation practices:

Scope for domestication: Marketing opportunities

Taboos/Rituals: Folklore/Beliefs:

Any other information:

Fig. 2:A questionnaire format for collection of ethnobotanical data in Kamrup district, Assam (with modification from Alam, 1998).

Conservation and Management of plant resources

Any conservation initiative must be holistic that respect local culture and practices. Agroforestry, particularly home gardens is a launching pad for achieving food security, alleviating poverty and conservation in Kamrup districts. Agroforestry is time-tested practice that has not failed to deliver the targeted goals (food security, nutrition, social, cultural, ecological and economic benefits). This study identified 15 plants belonging to 15 genera under 13 families with agroforestry potentials in home gardens in fringe areas

Table 8: Inventory of indigenous plants with agroforestry potentials and current practices in fringe villages of Kamrup district.

Botanical Name [Family]	**Uses**	**Current cultivation practice**	**Value addition**
*Areca catechu*L [Arecaceae]	Food	Along boundary of home garden.	Plantation in dedicated plots.
Bambusa tulda Roxb. [Poaceae]	Food, construction	Randomly planted in home garden and field.	Plantation on one side of home garden.
*Carica papaya*L.[Caricaceae]	Food	Few plants for household consumption .	Along boundary or dedicated plots.
Calamus rotang L. [Arecaceae]	Cordage	1or 2 plant in home garden for household need.	Plantation on one side of home garden.

Capsicum sp. [Solanaceae]	Food	Few plants grown for consumption.	Plantation in dedicated plots.
Citrus sp. [Rutaceae]	Food	Planted for household consumption only.	Large scale cultivation.
Curcuma longa [Zingeberaceae]	Food	Forhousehold consumption only.	Planting in dedicated plots.
Dillenia indica L. [Dillieniaceae]	Food, Medicine	Natural populations in middle or side of field.	Plantation along boundary of farmland.
Gmelina arborea Roxb. [Lamiaceae]	Timber	A few trees grown usually outside home garden.	Plantation in plots outside home garden.
Imperata cylindrica L. [Poaceae]	Roofing	Maintained in small plots for household needs.	Plantation in plots outside home garden.
*Manihot esculenta*Crantz[Euphorbiaceae]	Food	Planted along boundary of home garden.	Plantation along boundary.
Musa X paradisiaca [Musaceae]	Food	Planted in boundary side of the home garden	Plantation in dedicated plots.
Piper betel Blanco [Piperaceae]	Food	2 or 3 plants grown for consumption only.	Plantation on other home garden plants.
Sesamum indicum(L.) [Pedaliaceae]	Food	Grown for consumption only.	Plantation in agricultural fields.
Zingiber sp. [Zingeberaceae]	Food	For household consumption only.	Planting in dedicated plots.

Agriculture and subsistence practices

Agriculture is the main occupation of the people (Rabha, Garo, Boro and Tea-Tribes). The practice however, is subsistence in nature as the production is mainly for consumption and only surplus products are traded for cash benefits or bartered. Agricultural land is scarce so farmers make optimum use of land available to them. It may be mentioned that *jhum* (slash and burn), which is a predominant form of agriculture with indigenous people has not been observed among ethnic groups in Kamrup district. But land forms the most important production system; fisheries, livestock rearing and insect rearing are secondary occupations.

Monoculture with paddy (*Oryza sativa*) is the most chief crop cultivated in permanent plots during May to December of the year. Both *Ahu* (summer paddy) and *Sali* (winter paddy) paddy are cultivated. Though high yielding varieties are more popular yet many farmers are still growing age-old folk varieties of crops. *Bari* or home gardens in fringe areas of Kamrup form important production system to supplement domestic food requirement which also provide avenues for selling surplus produce for generating monetary gain. Being the oldest form of agro-ecosystem, home gardens considerably a strong foundation for domestication of a vast number of edible plants species which still exist as wild in Forest. The practice makes the indigenous plants more accessible for households and maintains sustainable use of those plants. Home gardens can augment food production and provide food security to resource poor families.

Conservation of wild plants

There is no specific practice or social rule among the ethnic groups for management of wild plant resources. But their harvesting pattern and utilization, beliefs, ethos and worldviews carry elements of sustainability. Utilization of plants is mainly guided by their religious affiliation while harvesting or collection of wild plant resources is influenced by their world views.

Taboos and restrictions: On the other hand, taboos indicate some selected plant as sacred, whose different parts are used in some worship of deities, or in propitiation of supernatural powers. These plants are only collected by the Pujari. For example *Adina cordifolia*, which is used as sacred one in all the social and religious rituals. This plant is cultivated near every household of the villages of tribal communities.

Fig. 1: A Boro girl prays near *Nerium indicum* L.

Fig.49: *Ocimum basilicum* L.

Sustainable practices: The local medicine man or *Ojha* never uproot or pluck the whole plant for gathering the medicinal roots, tubers, rhizomes, tender shoot, fruits, seed etc from single population. They collect only the useful parts. There is a practice among medicine man not to introduce the medicinal plants to other, which is very important conservation system among the tribal communities.

The village shrine is generally situated in northeast corner of the village and covered with big trees and jungles. As a result a good number of creepers, herbs, shrubs and trees are found in the small area. These

plants particularly represent the species of most of the taxa of the surrounding vegetation. Hence the village shrine plays an important role in conservation of genetic resources as well as biodiversity of the area.

Conclusion :

Ethnobotany is gifted with endless opportunities for exploration courtesy interdisciplinary nature of the subject. Previous studies among indigenous peoples have already contributed to the discovery of pharmaceuticals such as quinine (antimalaria), vincristine and vinblastine (anticancer), reserpine (high blood pressure), aspirin (analgesic and antinflammatory), codeine (cough), etc. There are promises that concerted ethnobotany-inspired efforts will produce more novel botanicals of immense significance. Integration of ecology with ethnobotany (ethnoecology) can throw insights into how indigenous peoples have used water and land for food production and how they have managed scarce resourcesEthnobotanical studies on peasant agriculturists have not been prominent as compared to other areas of the subject. Traditional agroforestry systems are models for food production, sustainable land use and conservation of agrobiodiversity. Quantitative analysis of ethnobotanical data can complement local uses of plant resources and help to identify high value species to present cases (prioritize) for their conservation. Ethnobotanical studies coupled with phytochemical screening of local plants will help in identification of bioactive compounds and can help validate local uses. Ethnobotanical exploration is inevitable for discovery of new plant resources and discovery of new species but with respect to the traditional knowledge of local people and culture as per international mandate on access and benefit sharing for using their knowledge.

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